An Overall View of Scholarly Journal Publishing

ALPSP Seminar in association with NII and SPARC Japan

Tokyo, 17 January 2008

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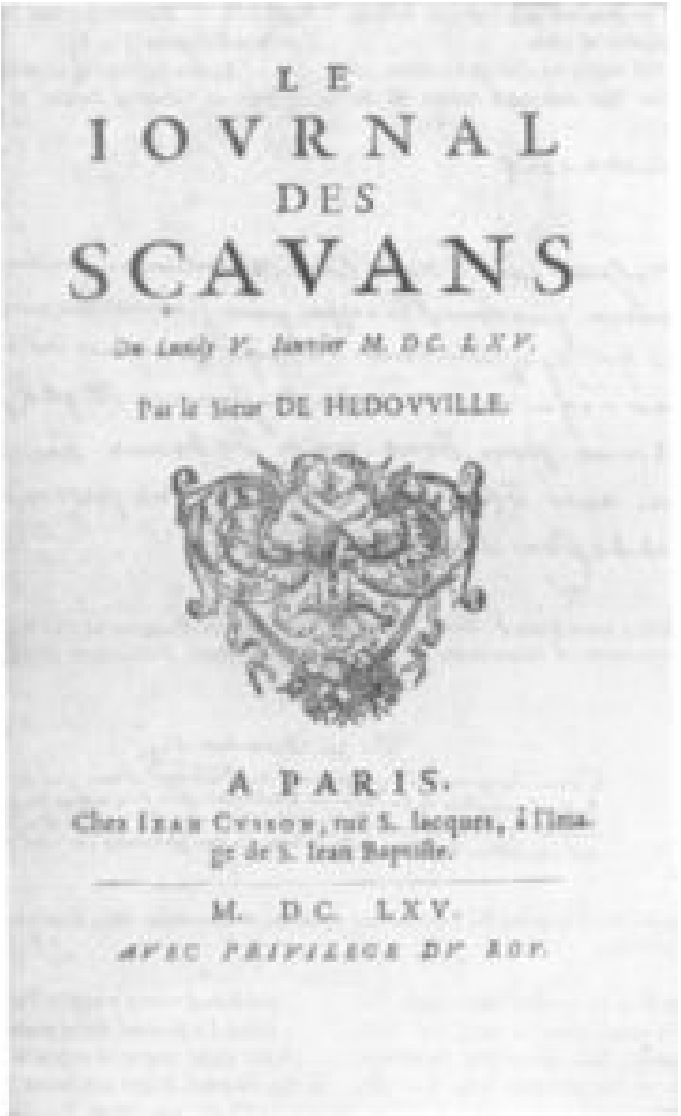
RSC Publishing

Overview

- A brief history:
  - Journals from the 17th century to the present
- Main journal characteristics
  - Why are journals important?
  - Features of a typical journal
  - Peer review
- The main players
  - Who are they are what are their needs?
- Trends and recent developments
  - How the Internet is changing journal publishing

The First Journal

- *Journal des Scavans*
- Established January 1665
- Editor: Denis de Sallo de la Coudraye
- First published in Paris
- Still in existence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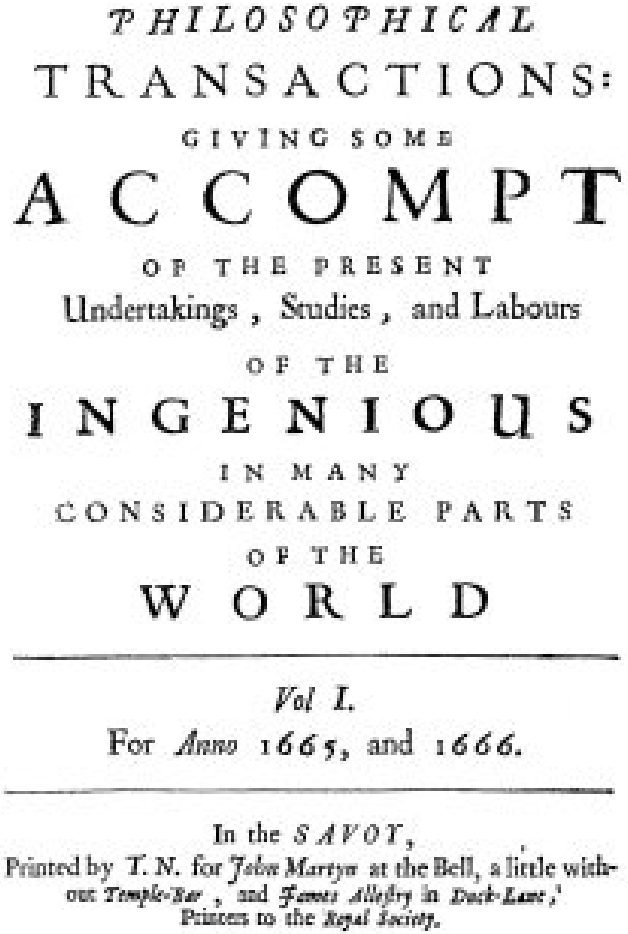
The First Scientific Journal

- *Philosophical Transactions*
- The first true scholarly journal
- Established March 1665
- Editor: Henry Oldenbourg
- Still published to this day:
  - Phil Trans of the Royal Society



PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD

Vol I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.

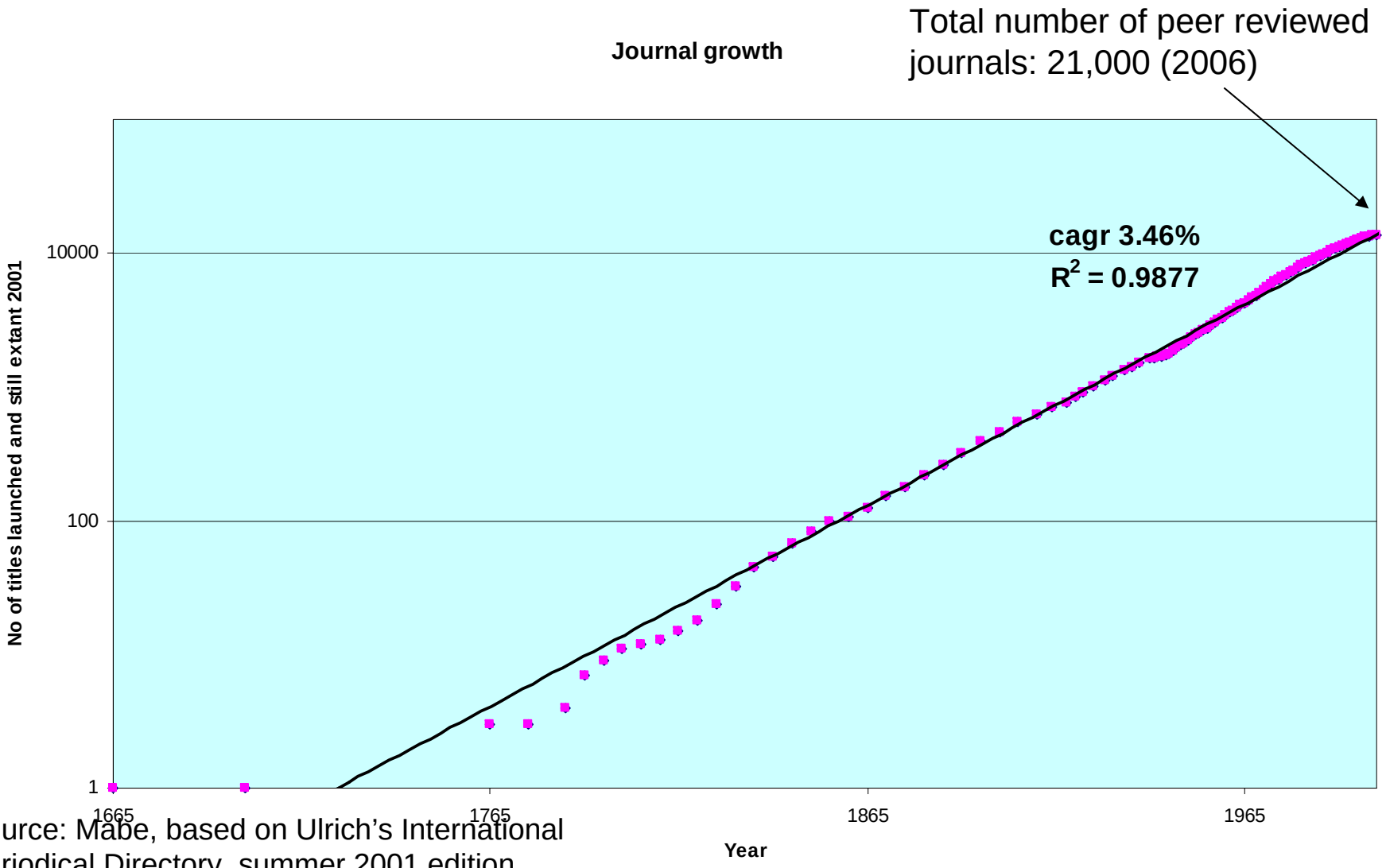
RSC Publishing

Who Invented the Journal?

- Origins:
  - Robert Hooke's proposal:
  - A weekly printed publication:
  - *a brief discourse of what is new and considerable in their letters from all parts of the world, and what the learned and inquisitive are doing and have done in physick, mathematicks, mechanicks, opticks, astronomy, medicine, chymistry, anatomy, both abroad and at home*

- Henry Oldenbourg
  - Born in Germany
  - Corresponded with many leading scientists of the time
  - Appointed Secretary to The Royal Society
  - Editor and Publisher of Phil Trans

Growth of active peer reviewed journals since 1665



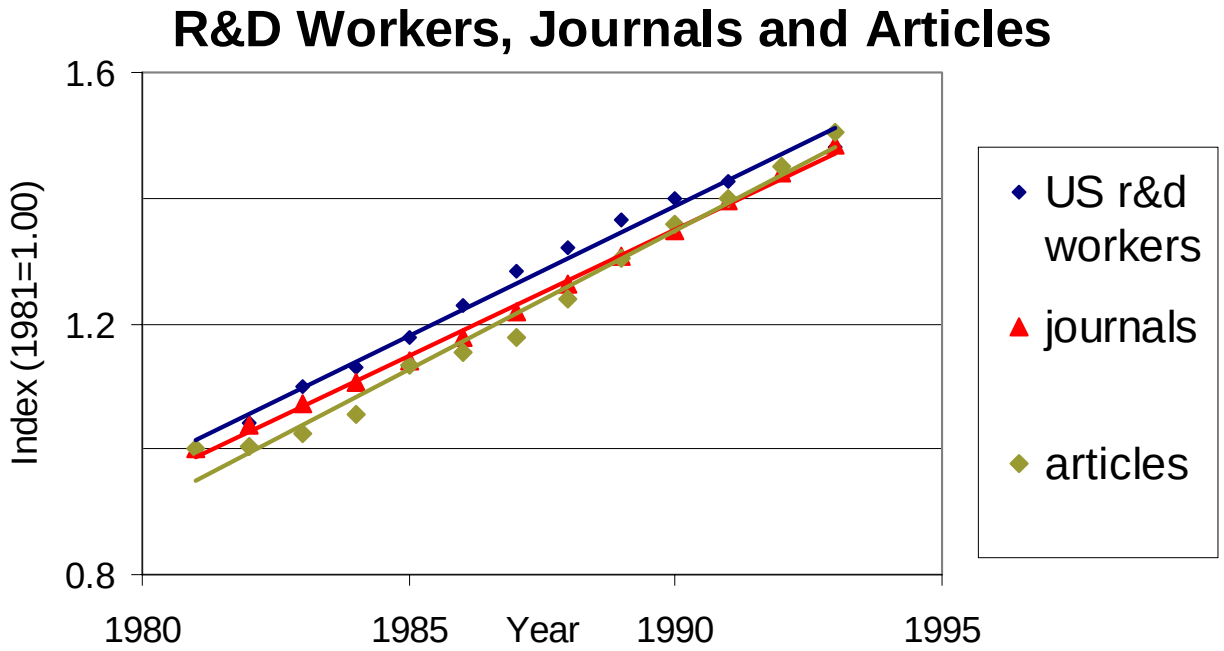
Source: Mabe, based on Ulrich's International Periodical Directory, summer 2001 edition

Growth Trend and Specialisation

- 17th and 18th centuries
  - First journals
  - Broad based, natural science
- 19th century
  - Hundreds of journals
  - Specialisation: maths, physics, chemistry…
- 20th and 21st centuries
  - >20,000 journals
  - Highly specialised / niche fields

Drivers of Growth

- More research funds = more researchers = more research articles



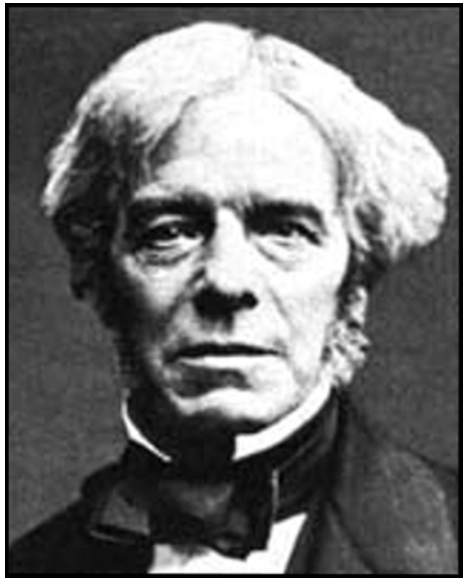
Reactions to Growth

'The present mode of scientific publication is predominantly through the 33,000-odd scientific journals. It is incredibly cumbersome and wasteful, and is in danger of breaking down on account of expense.'

J D Bernal (1939)

'It is certainly impossible for any person who wishes to devote a portion of his time to chemical experiment, to read all the books and papers that are published..; their number is immense, and the labour of winnowing out the few [of interest] .. is such, that most persons who try .., pass by what is really good.'

Michael Faraday (1826)



Journal Economics and Market Size Estimates

- ~2000 journal publishers globally
- 23,000 scholarly peer reviewed journals
- Highly skewed distribution
  - Small number of very large commercial publishers:
    - Elsevier and Springer ~ 2000 journals each
  - Long tail of smaller publishers
    - Learned societies, professional associations, university presses
    - Often non-profits
- 1.4 million articles per year
- Important sub-set is the ISI Journal Citation Report (JCR):
  - 6000 in the Science Edition
  - 1700 in the Social Sciences Edition
  - 1130 in the Arts & Humanities Edition
  - These collectively publish ~1 million articles per year

What is a Journal?

- Definition:
  - A publication in any medium appearing on a regular basis and intended to be continued indefinitely
  - Reporting original research, written by specialists for specialists

- Other terms for journal:
  - Periodical
  - Serial

What Functions does the Journal Play?

- The journal continues to perform four main functions:
  1. Registration: establishing the author's precedence
  2. Dissemination: communicating the findings to its intended audience
  3. Peer review: ensuring quality control
  4. Archival record: preserving a fixed version of the paper for future reference and citation

Features of a Journal

- A defined subject coverage
  - Aims and scope
- Publishes original research results
- Usually has an Editor-in-chief and editorial board of international experts, leaders in the field
- Uses a peer review process
  - Referees / reviewers
  - Accept / reject papers
  - Acceptance rates vary

Different Types of Journal Content

- Research content
  - Primary research journals
  - Rapid / Brief communications
  - Letters journals: e.g. Physical Review Letters, Chemical Communications
- Review articles
  - Tutorials, trends, overviews
- Secondary information
  - Abstract journals
- Correspondence
- Editorials
- News, views, commentary, book reviews
  - E.g. Science, Nature
- Advertising

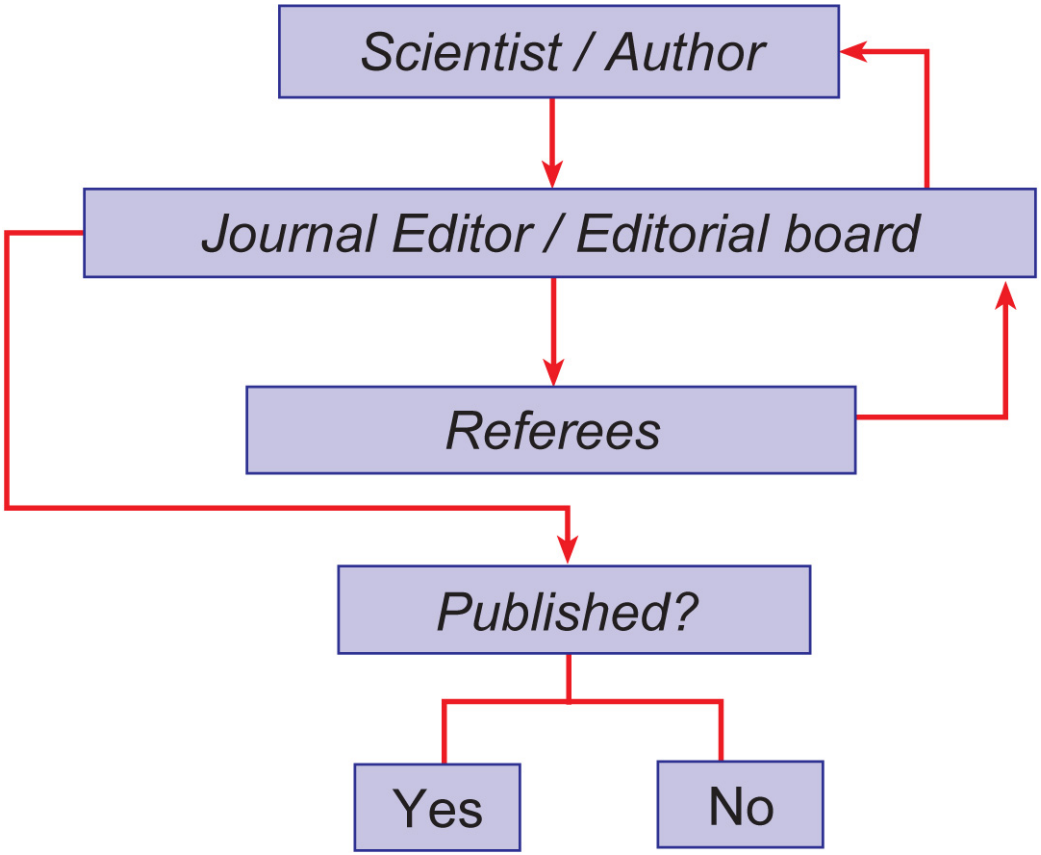
What is Peer Review?

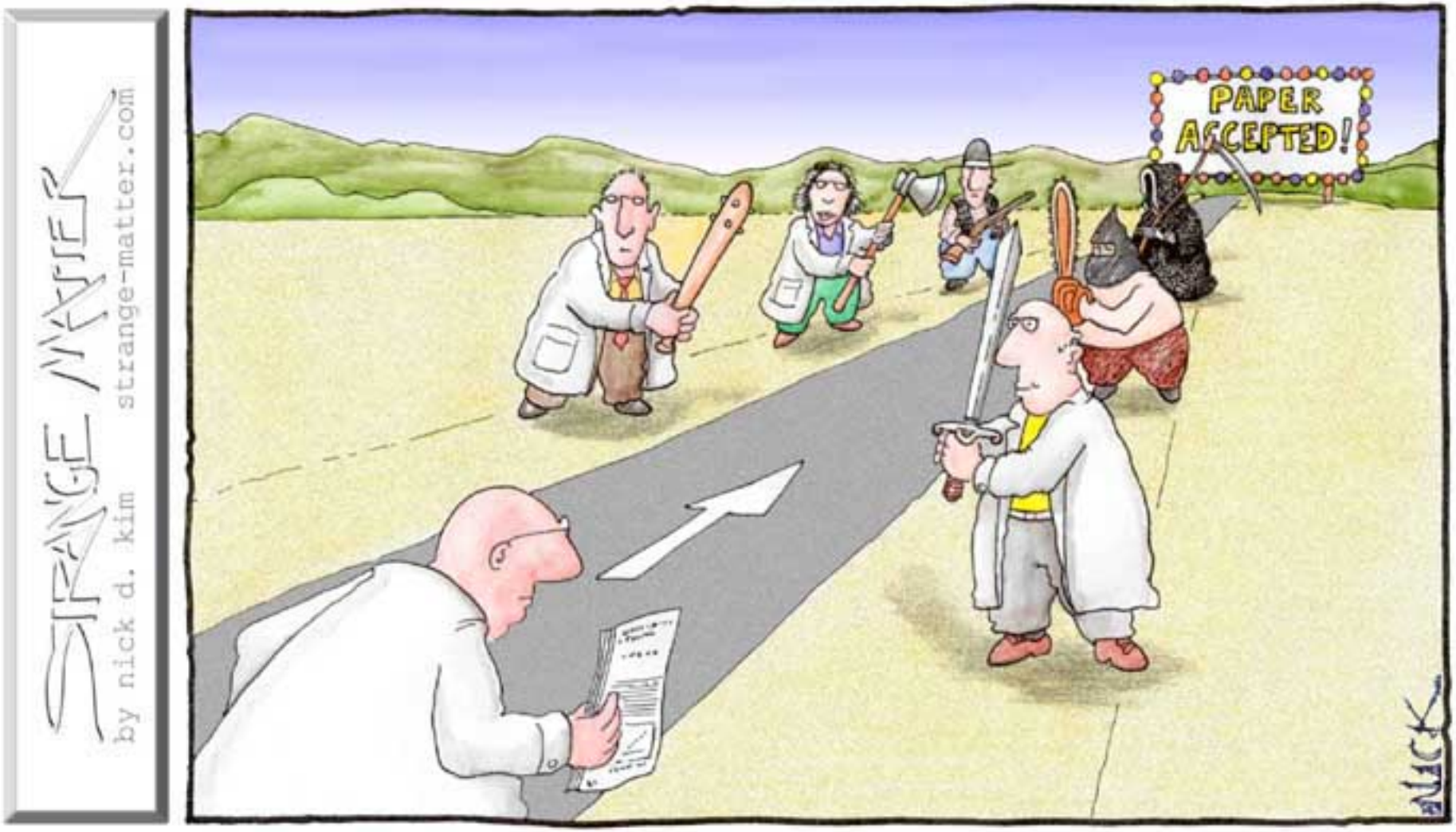
- Independent assessment by experts in the field
- Referees provide constructive criticism and feedback on your paper
- A ‘filter’ for scientific quality control
- Publishing a paper in a peer-reviewed journal gives more credibility to your work than if you post it on your own web site
- Peer review is an essential part of publishing in a journal or obtaining a grant

Peer Review

- Role of referee / reviewer
  - Provide an independent, expert view of the merit of the paper, advise the editor-in-chief
- One of the pillars of scholarly journals
- Highly valued by authors
- Pre-screening process
- Open peer review, Single-blind or Double-blind peer review?
- How many referees?
- Referees are typically unpaid volunteers
- Most journals now use online editorial office software
- Problems with peer review?

Peer Review Flowchart





Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

Peer publishing

Peer review process

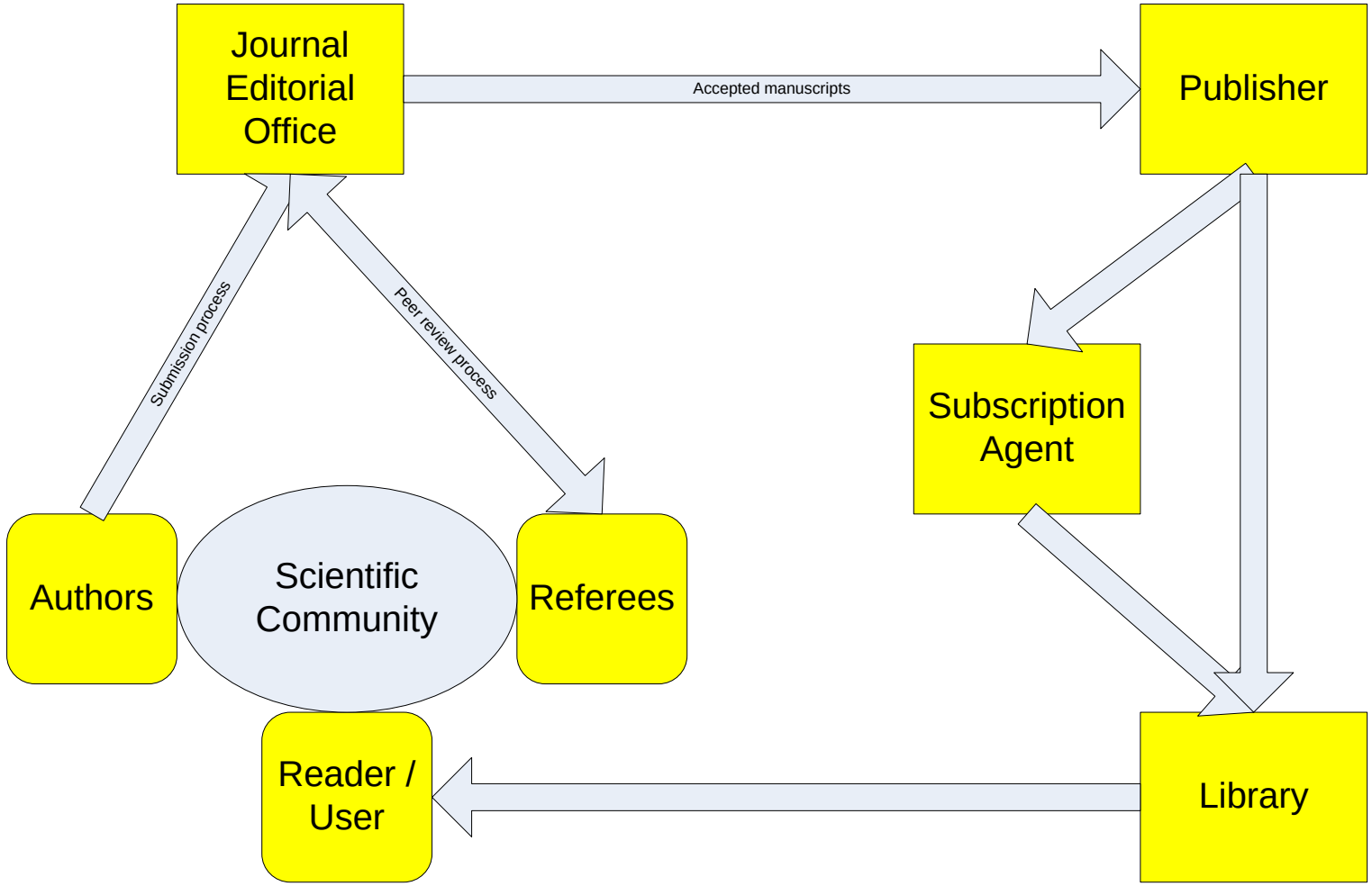
- 81% of authors prefer to interact with online journal systems
- 63% of referees prefer to referee online, 31% via email
- 70% of editors report:
  - decreased refereeing time (-25%)
  - decreased admin time (-30%)

Source: “Online submission and peer review systems - a review”, Mark Ware, Mark Ware Consulting Ltd

Role of the Publisher

- An intermediary between author and reader: needs to add value
- Peer review
- Editing and formatting
- Dissemination
- Communication

The Publishing Cycle



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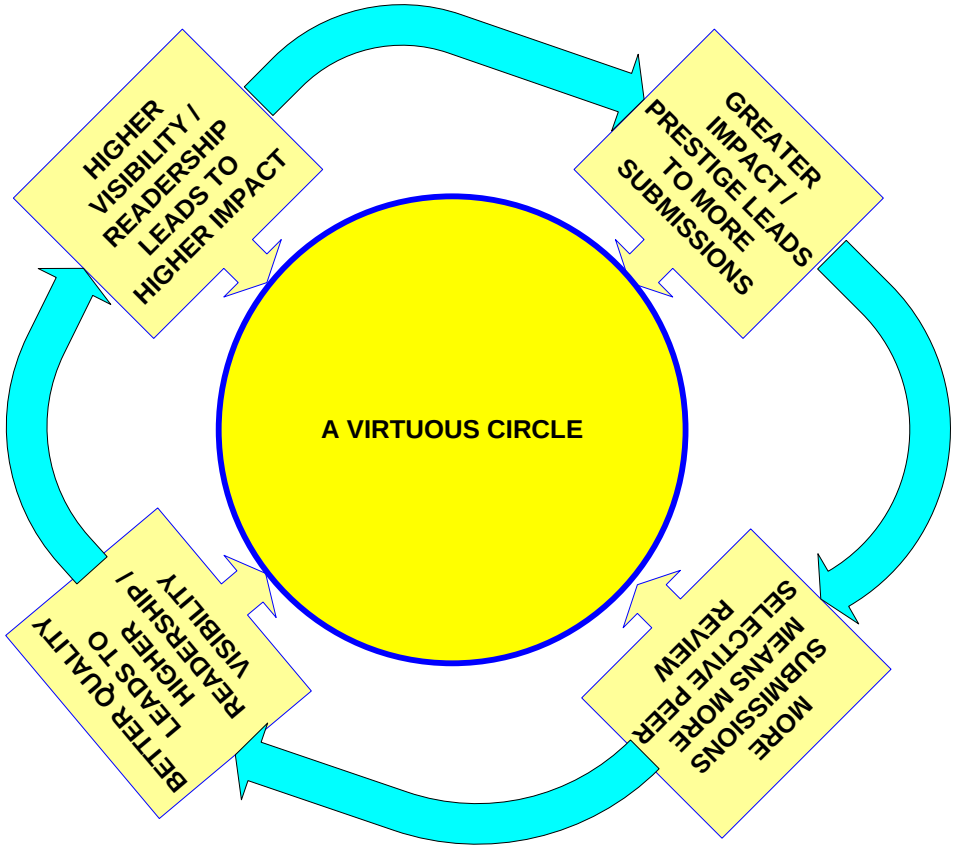
A Virtuous Circle



Journals: come in many different shapes and sizes!

Rank (2006 JCR)	Journal	IF	Articles	Cites
1	Cancer Jnl for Clinicians	63.3	19	5266
2	New England Jnl Medicine	51.2	303	177,505
3	Ann Rev Immunology	47.2	24	15,482
9	Science	30.0	885	361389
15	Nature	26.7	962	390,690
1	Appl Phys Lett	4.0	6153	140,050
2	Phys Rev B	3.1	5631	212,714
3	J Biol Chem	5.8	4336	410,903
15	Japan J Appl Phys	1.2	2336	27,877

Key Success Factors

- Citation performance
  - Authority / prestige
  - Impact Factor
  - **CREATE BRAND / PRESTIGE**
- Editorial
  - Quality / topicality of articles published
  - Global spread of authors
  - Publish more of the best quality papers versus the competition
  - Speed of publication / author service
  - Author satisfaction
  - **UNDERSTAND AUTHOR BEHAVIOUR**
- Marketing
  - Number of subscribers, institutes with access
  - International visibility / global circulation
  - Downloads, usage, cost per use
  - Reader / library satisfaction
  - **DRIVE USAGE**

The Journal Impact Factor

- Measures how often the ‘average article’ in a journal is cited
- A way of quantitatively comparing journals
- Created by Eugene Garfield in the 1960s
- Thomson Scientific produce the Journal Citation Reports

Journal Impact Factor

Cites in 2005 to articles published in:	2004 = 740		Number of articles published in:	2004 = 203	
	2003 = 565			2003 = 161	
	Sum: 1305			Sum: 364	
Calculation:	Cites to recent articles	1305	= **3.585**		
	Number of recent articles	364			

Impact Factor: Treat with Caution

- Impact factors vary by:
  - Subject
  - Number of co-authors
    - More co-authors, greater number of citations
  - Journal type
    - Short communications
    - Letters
    - Review journals
  - A small number of articles with high citations can have an enormous effect on the IF

Key Stakeholders

What Authors want from journals

- Researchers publish in order to:
  - To achieve widespread visibility / dissemination, to be read and cited (EGO)
  - To advance their career propspects
  - To win research funds

- Authors choose journals on a number of factors:
  - Journal reputation / standing in the field (Impact Factor), quality of content
  - Refereeing quality
  - Speed of refereeing and rapid publication times
  - Publisher services: Ease of publishing process (Web submission and peer review)

- Note: Authors are the main customers of any journal

Further info: What do authors really want: see www.alpsp.org/swan.ppt

Key Stakeholders

What Readers want from journals

- Material that is appropriate / relevant to their research interest
- Tools to find / discover relevant content
- Availability and access

- Benefits of online:
  - multimedia, more colour, additional data, ‘live’ math
  - Enhanced functionality
    - powerful search
    - alerting
  - Seamless access
  - linking access to past and present
  - A&I to full text
  - reference linking

Key Stakeholders

What do Librarians want from journals?

- Flexibility: selection and collection coverage
- Models that encourage rather than restrict use
- Predictability: for budgeting
- Widest possible access for their user community
- Reliable usage statistics (ProjectCOUNTER)
- Decrease in cost over print expenditures (value for money)
- Straight forward liberal licences
- Deals that can be monitored easily
- E-only access - but….
  - archive assurances, VAT

Key Stakeholders

What do (Learned Society) publishers want from Journals?

- Provide service to the community
- Benefit for members
- Reduce print dependence
- Desire to believe the market is growing
- Do not want to restrict usage
- See some relationship between usage, size of institution and price
- Neutral on OA / author pays
- Provide a surplus

- Other stakeholders
  - Government, funding agencies

How the Internet has changed scholarly journal publishing

- 1994-2008: A Period of Extraordinary Change!
  - Conversion of print to online
    - new front-end systems
    - back-office processes being re-engineered
    - additive cost of electronic versions
  - New business models
  - New channels - ‘unbundling’ journal issues
    - ‘Virtual’ journals
  - ‘Google culture’
  - The internet as a ‘disruptive’ technology
  - Open Access movement
  - Institutional repositories

Online Journals

- Majority of journals are now available online:
  - 93% of STM journals
  - 84% of Arts & Humanities journals
    - Source: John Cox (2005 publisher survey)
  - Ulrich's suggests 62% online

Online versus Print Journals

- Ease / convenience of access
  - 24x7x365 at desktop
- Linking and tagging
- Searching
  - Current year
  - Back archive
  - Other content, e.g. books
- Publication in advance of print issue
- Table of content alerts
- RSS feeds
- Feedback and commentary
  - Blogs, podcasts
- Supplementary data
- Online colour, multimedia
- Usage statistics
- Integrated content, e.g. e-Books
- Publishers now appreciate they have customers!

Some Concluding Observations

- From this:
  - Journal publishing was slow moving: an industry that did not realise it had customers! Locked into market segments and niches
- To this:
  - STM publishing is one of the fastest areas of internet development. It is highly competitive, innovative
  - Barriers to entry reduced: more dynamic, flexible open minded and competitive new comers
- And also:
  - STM publishers are managing the transition to the new media – most STM publishers also now publish e-versions
  - Technological developments are creating both opportunities and challenges

- See: Scholarly Publishing Practice (2005), ALPSP report

arigato gozaimas!

- Any questions?